

# The Mining Journal

## RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 291.—Vol. XI.]

LONDON: SATURDAY, MARCH 20, 1841.

[PRICE 6D.]

**PRELIMINARY SALE OF TIN BOUNDS.**  
**T. GERRANS** will offer for SALE, by PUBLIC AUCTION, on Wednesday and Thursday, the 24th and 25th instant, all those TIN BOUNDS, situated in the several parishes of St. Agnes, Perranzabuloe, Kenwyn, Kea, Redruth, Hlogan, and Gwennap, the property of Mr. J. N. Bonython, of Gwennap, particulars of which will be stated in handbills.

The sale for the Bounds in the parishes of Kenwyn, Kea, Redruth, Hlogan, and Gwennap, will be held at the Seven Stars Inn, in the town of Truro, on Wednesday, the 24th, and for those in the parishes of St. Agnes and Perranzabuloe, at the White Hart Inn, in St. Agnes Church-town, on Thursday, the 25th, at Three o'clock each day.

An abstract of the title may be seen, and particulars known, on application to the auctioneer, at Gwennap, on March 9.

**GREAT WORK CONSOLS TIN MINES**, in the parishes of Breage and Germoe, Cornwall.

**TO BE SOLD, BY AUCTION, ON TUESDAY**, the 30th day of March inst., by Three o'clock in the afternoon, at the Star Hotel, in the borough of Helston, in seven lots, SEVEN (19th SHAR) S in the valuable and productive Tin Mines, called the GREAT WORK CONSOLS, in the parishes of Breage and Germoe, in the county of Cornwall, situated in the same district as, and near to, the very celebrated tin mine of Wheal Vor. The machinery of the mines is worth a very large sum, there are two draught engines, each of 60-inch cylinder, a very large steam-stamp, with a steam-whim, and all other necessary and convenient machinery and erections. Nearly £2000 profit was divided amongst the adventurers between the years 1834 and 1836, but since that period no further dividends have been declared, in consequence of the present adventurers having expended a very considerable sum in erections, machinery, and preparations for a more extended opening on the lodes, for the months of August, September, and October last, a clear profit of £1300 and upwards was realised, and the appearance of the lodes were never more promising than at present. The limits of the sett are very extensive, not half the ground has yet been explored, and the present prospects of the mines afford the strongest probability of realising, for the future, large and lasting profits to the adventurers.

For leave to inspect the mines, application may be made to the Purser, John Silvester, Esq., Helston, or to Captain Blight, at the account-house, on the mine, and for other particulars to Messrs. Millett and Borsale, solicitors, Penzance.

Dated 1st March.

**BALLYHICKY & KILBRICKEN LEAD AND SILVER MINES**, near Ennis, in the county of Lare, Ireland.

**TO BE SOLD, BY AUCTION, ON Thursday**, the 1st of April next, at the mines, at Eleven o'clock in the forenoon, all the INTEREST OF THE PRESENT ADVENTURERS in the said MINES, and also the ENGINES, MACHINERY, TOOLS, &c., therein, in such lots as may be suitable to purchasers. The materials include the following among many other articles, nearly new, and in excellent condition:—

One steam-engine for pumping, 20-inch cylinder.  
One ditto for pumping, crushing, and winding, 17-inch cylinder.  
40 fathoms of 10-inch iron pumps, with working barrels, clack pieces, &c.  
30 ditto of 7-inch ditto ditto ditto.  
140 fathoms of iron pump rods and horizontal ditto.  
An excellent crushing-mill, with 30-inch rollers.  
The bellows, anvils, and tools of two smiths' shops.  
Capstans, whim ropes, miners' tools, office furniture, and a great variety of other articles.

For viewing the same, application to be made to P. Meadows Taylor, Esq., or to Captain John Paul, at the mines.

**TO BE SOLD, BY PRIVATE CONTRACT**, that extensive coal field, known as the HAZLERIGG COAL MINES, together with the long, established, and valuable current-going colliery, called FAWDON COLLIERY, situated about three miles north of Newcastle-upon-Tyne, with all the fixed and moveable stock thereon.

The coal, which is the High Main, or Wall's End seam, is of excellent quality for domestic purposes, and has been well known in the London and coast markets for the last twenty-six years as "Newmarket's Wall's End." A new winning was completed in 1836, and a new pumping engine erected thereon, and the colliery is now in a state to produce more than 1,000,000 tons of coal annually, and is well adapted for the winning of new portions of coal to this colliery for a long period of years. The great extent of the Hazlerigg coal field, comprising about 4500 acres, affords the opportunity of establishing other valuable collieries.

For further particulars, application may be made to Mr. James Easton, the colliery viewer, to Mr. Thomas Forster, Haswell colliery, to John Wilkinson, Esq., solicitor, Hull, to Messrs. Bell, Rodrick, and Bell, solicitors, Bow Church-yard, London; or to Messrs. Carr and Jobling, solicitors, Newcastle-upon-Tyne.

Newcastle, November, 1840.

**ENGINES FOR SALE.—A PUMPING ENGINE**, on the high-pressure principle, with condenser attached, cylinder twenty-six inches, length of stroke seven feet. The engine is in good working order, and is well worth the attention of parties who require an engine of this size.

Also, a COMPLETE WINDING ENGINE on the same principle, cylinder twenty inches, length of stroke five feet. The above to be seen on application to Mr. R. Moore, manager, and sealed offers to be left at the office of Prestongrange Colliery, Hill Street, March 26.

Prestongrange Colliery, February 26.

**TO COAL AND IRON MASTERS.—THE GELLYHIR ESTATE** contains upwards of twenty veins, varying in thickness from two to six feet each of superior coal, with an abundance of rich iron ore, covered by a surface of more than 400 acres, and is advantageously situated with regard to the ports of Swansea and Llanelli, and the navigable river Barry. It is confidently submitted that this estate contains the richest seams of coal and iron ore in the South Wales mineral district, and the proprietor having determined on allowing this hitherto unproductive part of his property to be worked and brought into full operation, is willing to receive PROPOSALS for a lease of the minerals from any company of gentlemen who may be desirous of availing themselves of the opportunity now afforded of investing capital at an immense and certain profit.

Further particulars may be obtained of the proprietor, N. Cameron, Esq., Swansea, of Mr. D. S. Rockett, 65, Lincoln's Inn-fields, London; and of Mr. Charles Bailey, Mayor office, Cheltenham.

**TO MINING ADVENTURERS.—WANTED, a PARTNER** in a CURRENT GOING COLLETRY in the north of E. gland, who can command £500 or £600. Particulars to be had on application, at the office of this Journal, 37, New Broad street, London.—March 16.

**SARK SILVER MINES.**—Specimens of the various Ores found in these valuable mines are now lodged at the Royal Gallery of Practical Science, Adelaide street, West Strand, under the care of the secretary (Mr. Everth), to whom parties wishing information, or who are desirous of becoming connected with this undertaking, may apply between the hours of Eleven and Four daily. The above mines have recently been inspected by W. J. Henwood, Esq., C.E., F.R.S., &c., &c., and underground mining surveyor to Her Majesty, whose highly interesting report can be seen upon application to Mr. Everth.

**THE PATENT SAFETY FUSE**, FOR BLASTING ROCKS IN MINES, QUARRIES, AND FOR SUBMARINE OPERATIONS.—This article affords the safest, cheapest, and most expeditious mode of effecting this very hazardous operation. From many testimonies to its usefulness with which the Manufacturers have been favoured from every part of the kingdom, they select the following letter, recently received from John Taylor, Esq., F.R.S., &c., &c., &c.

"I am very glad to hear that my recommendations have been of any service to you. They have been given from a thorough conviction of the great usefulness of the Safety Fuse, and I am quite willing that you should employ my name as evidence of this."

Manufactured and sold by the Patentees, BICKFORD, SMITH, and DAVEY, Camborne, Cornwall.

**THE INVENTORS' ADVOCATE, AND JOURNAL OF SCIENCE, INVENTIONS, MANUFACTURES, AND ARTS**, is the most useful and comprehensive work of the kind published. It contains the scientific intelligence of the work, correct information on railways and steam navigation, list of patents granted and expired; special notices and descriptions of new inventions; reports of scientific meetings, and original papers on manufactures and the arts; with a variety of information interesting to inventors and patentees. It is not only a journal of interest for the day, but it is a valuable work of reference, valuable to persons engaged in scientific, manufacturing, and mechanical pursuits. Vols. 1 and 2, octavo bound, are already published, and the 3d Vol. is now in course of publication.

Select remarks from more than 100 authors of the public press.—"The Inventors' Advocate is one of those useful, practical publications, which the spirit of the times has long called for. The friends that have been practised by men who have suffered and appropriated the ideas of others, would form a catalogue scarce to be equalled for the infancy of its details. Many a poor but talented artist has been the fruits of his labour enjoyed by another, while he himself has been reduced to poverty. It is to protect the poor inventor that the Advocate has been established, and there are no bounds to the good it may effect. It is in very talented hands, and we have no doubt of its success."—Brighton Herald.—"There is an originality of thought, and a facility of execution about this periodical, that pleases us vastly; and to men of science—inventors, perhaps, more particularly—it will prove invaluable."—Bells's Messenger.

The Inventors' Advocate, price fivepence, postage free, is published weekly, by the proprietors, at the public office No. 14, Strand, London.

**MUSEUM OF ECONOMIC GEOLOGY, DEPARTMENT OF HER MAJESTY'S WORKS, &c.,** Craig's-court, Charing-cross.—A LABORATORY having been established at this Museum for the ANALYSIS OF THE ORES of the useful metals, coals, soils, subsoils, building stones, &c., and an office for the COLLECTION AND PRESERVATION OF MODELS OF MINING MACHINERY and MINES, has now formed a branch.—Notice is hereby given, that arrangements have been made with Mr. Richard Phillips, F.R.S., &c., the editor of the Museum, and Mr. T. B. Jordan, the keeper of the Mining Records, for the INSTRUCTION OF PUPILS in Analytical Chemistry and in Mining, Plan and Section Drawing, Mining Machinery, &c., upon terms which have been approved of, and which may be ascertained by application to these gentlemen at the Museum, any day between the hours of eleven and four o'clock.

**COMBIMARTIN AND NORTH DEVON LEAD AND SILVER MINES.**—Notice is hereby given, that the following shares in the above company are FORFEITED for non-compliance with the rules and regulations of the said company:—Five Share Scrips.—No. 51, 62, 241, &c.

By order of the directors, WILLIAM NEWTON, Secretary.

Combimartin, March 15.

**GREAT WHEAL CHARLOTTE MINING ASSOCIATION.**

—Notice is hereby given, that a SPECIAL GENERAL MEETING of the shareholders will be held at the George and Vulture Tavern, Cornhill, on Monday, the 29th instant, at Two o'clock precisely, for the purpose of confirming the resolutions passed at a Meeting of the shareholders held at the same place on the 13th instant, for the raising a further capital, by the creation of new shares.

Laurence Pountney-hill, March 13.

**NEW GRANADA MINING COMPANY.—A SPECIAL**

GENERAL MEETING of the proprietors of the New Granada Mining Company will be held at the office of the company, 13, Austinfriars, on Thursday, the 28th instant, at Three o'clock precisely, for the purpose of considering the expediency of authorising the directors to create additional shares in the said company.

By order of the board of directors, JOHN CHAPMAN, Secretary.

March 11.

**POLBREEN TIN AND COPPER MINING COMPANY.**

—Notice is hereby given to the shareholders of this company, that the directors have called for a further INSTALLMENT OF FIVE SHILLINGS per share, being the fifth call, payable on or before the 14th day of April next, at the bankers', Messrs. Bosanquet and Co., 73, Lombard-street.

No. 44, Finsbury-square, London, March 17.

**BAHIA STEAM NAVIGATION COMPANY.**—Notice is

hereby given, that the ADJOURNED GENERAL MEETING of the 29th June, 1840, of the proprietors of this company, will be held at the George and Vulture Tavern, George-yard, Lombard-street, on Monday, the 5th day of April, 1841, at Eleven for twelve o'clock at noon, to receive the further report of the directors upon the affairs of the company, and to elect two directors, in the place of Messrs. Richard Thornton Brown and Joseph Liddell Heathorn. Particulars as to the qualifications, &c., for the election, may be obtained at the company's office.

By order of the board, CHAS. SAUNDERS, Hon. Sec. and Director.

Lombard-street-chambers, Clement's-lane, March 12.

**BAHIA STEAM NAVIGATION COMPANY.**—Notice is

hereby given, that, in consequence of the failure in June, 1840, to elect directors in the place of those going out of office by rotation, a SPECIAL GENERAL MEETING of the proprietors of this company will be held at the George and Vulture Tavern, George-yard, Lombard-street, on Monday, the 5th day of April, 1841, at Eleven for twelve o'clock at noon, to follow the Adjourned June Meeting, for the election of two directors, vice Messrs. John Benson and Lewis Manasse, who go out by rotation, but who being eligible, under the provisions of the Deed of Settlement of the company, offer themselves for re-election.

Notice is hereby further given, that, in consequence of the resignation of the two auditors, Messrs. H. C. Dakyne and David Cannon (the latter of whom would otherwise have gone out by rotation), the same Special General Meeting will also be held for the purpose of appointing two auditors to fill up the offices respectively. Particulars as to the qualifications, &c., for the election and auditorship, may be obtained at the company's office.

By order of the board, CHAS. SAUNDERS, Hon. Sec. and Director.

Lombard-street, Chambers, Clement's-lane, March 12.

**LONDON AND BIRMINGHAM RAILWAY.—TO CON-**

TRACTORS, BUILDERS, IRONMASTERS, AND OTHERS.—FOR SALE, a quantity of useful RAILWAY STORES, of the best description, consisting of fish-bellied and light contractor's rails, about 40 lbs. per yard, plate-layers' box, such as girders, beams, long levers, &c., and about twenty loads of ash plank—the whole less than 1000 tons, at the company's station, Camden-town, between the hours of Ten and Four daily. For terms and particulars inquire at the office of the company's storekeeper, Camden Station, London.

Camden Station, March 11.

By order, R. CREED, Sec.

**BRISTOL AND EXETER RAILWAY COMPANY.**

TENDERS FOR LOANS ON DEBENTURE.—The directors of this company are ready to receive TENDERS OF LOANS OF MONEY, ON DEBENTURES to be issued in conformity with the Act of Parliament, secured on their undertaking, and on the rents, rates, and tolls arising therefrom, in sums of not less than £500, for terms of three, five, seven, or ten years, on interest at the rate of FIVE PER CENT. per annum, payable half yearly at the bank of Messrs. Glyn, Hallifax, Mills, and Co., London. The Tenders must express the sums and terms of years, and be addressed to the secretary, at the company's offices, in Prince's street, London, or Broad-street, Bristol.

J. B. BADHAM, Secretary.

Office, 20, Broad street, Bristol, Feb. 5.

**BOLTON AND PRESTON RAILWAY COMPANY.**

TENDERS FOR LOANS.—The directors of this company are prepared, under the powers of their Act, to receive TENDERS for the LOAN OF MONEY on security of their undertaking, and of the rates and tolls arising therefrom, in sums of not less than £500, for terms of three, five, seven, or ten years, on interest at the rate of FIVE PER CENT. per annum, payable half yearly at the bank of Messrs. Glyn, Hallifax, Mills, and Co., London. The Tenders must express the sums and terms of years for which the same are proposed to be lent, and to be addressed to the secretary at the company's office, Bolton.

By order of the board of directors, PETER SINCLAIR, Secretary.

**NORTH KENT RAILWAY.—EVERY INFORMATION**

relative to this undertaking may be OBTAINED by application at the office, No. 42, Lombard street, between the hours of Ten and Four o'clock daily.

**SAFETY ROTATION RAILWAY COMPANY.—Public at-**

tention is respectfully invited, by a company formed under the above-mentioned Act, to a highly important IMPROVEMENT in the CONSTRUCTION OF RAILWAYS, of which the important advantages may be confidently stated to be the PREVENTION OF LIFE AND PROPERTY, as by this invaluable invention all danger from accident, by collision or otherwise, will be found to be effectually obviated. The propelling power of steam not being locomotive, but stationary; and as the cost of a railway on the improved principle, by which the necessity for embankments or tunnelling is almost superseded, will be but trifling in comparison with the heavy expenditure incurred under the prevailing system, the additional benefit will be secured to the community of travelling with equal speed, and without apprehension of personal danger, at a diminished rate. Models and drawings of this invention can be seen, and prospectuses, containing a full description of it, and of the objects and views for which the company has been formed, may be obtained at their offices, 1, Walbrook-buildings, Mansion-house, London; where shares also may be had, on application to Mr. Robinson, the secretary of the company.

**ANDREW SMITH'S PATENT WIRE ROPE.—WILLIAM**

FOX and CO. having obtained the exclusive license for MANUFACTURING the above ROPE, beg to inform the public that SPECIMENS may be seen at their office, No. 7, Old Broad-street, London, where every information may be obtained, and also at the following places:—

Fox, Hawkins, and Nichol, wire drawers, Birmingham.  
Robertson and Co., 2, George Place, Glasgow.  
Mathias Dunn, Newcastle-on-Tyne.  
Joseph Rothwell, Plymouth.  
John Thompson and Co., Glasgow.  
J. T. Trevelyan, Dublin.  
Thomas Mooney and Sons, Belfast.  
Condon and Young, Glasgow.  
James Giblin and Co., Glasgow.  
Leith.

The rope is now at work in various mines in different parts of the kingdom, and also on the Blackwall Railway, where it answers every expectation. It has been used in shipping five years.

Just published, price 7s., with engravings.

**CRAIG'S ROTATORY STEAM-ENGINE**, explained and illustrated, with a complete review of the invention of the piston engine, and a comparative estimate of their relative power and advantages.

—Est quodam prodire lumen, si non datur ultra.

London: Houlston and Stoddeman, 6, Paternoster-row.

**CURSORY THOUGHTS ON THE ORIGIN AND USES OF COAL AND LIMESTONE IN THE MANUFACTURE OF IRON.**

BY G. THOMPSON, ESQ.

The origin of the world in which we live is by many viewed as truly mysterious, when they would only be guided by their meagre imaginations. To almost every probable source of origination it has been attributed, by men of every creed and in every age, and hence so very many different creeds, and some of them very discordant. Many of them seem but like "the baseless fabric of a vision," while others carry with them the air of probability. Whatever theory we may adopt as the most likely, and how much soever we may be disposed to allow the chemical and the mechanical agency of Nature to operate, in the production of what is called the secondary and tertiary formations of our globe, yet still we must allow the superintendency of the Great Architect, who is directing every agency for the benefit of its inhabitants, as well as for his own glory. All cannot be the work of chance or accident, for design and appointment are seen in every arrangement, both in the animal, vegetable, and mineral kingdoms.

This design is seen as much in the mineral kingdom as in either of the others, for every species of mineral has not only its chemical properties given, but its place is fixed, and its contiguity to other minerals is likewise appointed, that it may be the more useful to man. Thus we behold, as one instance, in confirmation of the above statement, that where iron ore or ironstone abounds, there coal, its fuser, and limestone, its flux, abound. By the juxtaposition of these three, we are enabled to manufacture one of the most extensively useful materials of human existence. "To suppose the above," says Combe, "is not to suppose too much," for unless the flux and the fuel had been found at no inconvenient distance from the various ores and stones of iron, which we are so plentifully scattered through the crust of this globe we inhabit, our comfort and enjoyment would have been considerably curtailed.

Coal, and especially in its most perfect state, seems to be a useful legacy bequeathed by the antediluvian world, and that bequest we seem in part to value. In every quarter of the globe this relict is found and valued. There are many kinds found, in which properties inhere, that are similar, and some dissimilar; and though these properties constitute its nature, yet they are found in various proportions as in all. To the manufacturer, then, it becomes matter of the first importance to ascertain what is the inherent properties of that particular species he would employ for conducting his various manipulations, that disappointment and failure may not be the result. Three kinds are generally stated to exist, and in each of these are many grades of useful ingredients, which in the manufacture of iron must be excited for combination with the various properties of the ores or ironstones used, whilst others must be driven off or destroyed; for without this excitement, and association and expulsion, there can be no iron made to purpose. This operation has been called the degasification and carbonisation of the ores.

There are three sorts, then, of coals, besides peat, that have been employed in the manufacture of iron. And, first, we have peat, which has been used, chiefly by way of trial, in the manufacture of iron, as well as for domestic purposes: it is, or may be, dried, decomposed vegetable matter, that seems to improve according to its decomposition and induration. It would seem to vary as much as the other combustible substances vary that have been employed in the manufacture of iron: Not many experiments have been made with this sort of fuel; but, most likely, generations yet unborn may use it, when other modes may be invented for destroying its adverse principles, and amalgamating its more conformable properties. It is said to possess the following ingredients, but varying as it is improved in nature or kind:—Carbon, 32.9; water, 31.3; gas and pyrogenous acid, 44.5; and ashes, 1.1 in every 100 parts. Secondly, we have brown coal, often called lignite, which varies as much as the preceding in degree of perfection. It is called lignite, from the Latin, *lignum*, wood. It may be said to be an imperfect formation of coal, preserving often the ligneous fibre or texture, according to the researches of geology. So strong is its texture marked, that by some it is called fossilised wood. It would seem, then, to be an intermediate link between vegetable matter and fossilised woods. Geologists assert, that it is in some respects resembles peat, and in others it resembles pit-coal in its chemical characters. It is the geological position, then, that defines its character. "Whatever," says Ure, "is found above the magnesian limestone is called lignite," for it has generally a woody aspect, while coal that of a rock. It is said to appear in three distinct localities—in alluvial soils, among trap rocks, and under stratified rocks. Marine remains being found in it, it would seem to have been formed under the sea, by the deposition of large quantities of drifted wood. Pit-coal has generally only freshwater fossil remains. We are informed they appear in the collieries, and pass into coal. They are said to possess—carbon, 77.10; oxygen, 19.35; hydrogen, 3.54; and earthy matter 1.00.

Thirdly, the coal called bituminous, comes next under our notice. This is called by Werner the independent coal formation, because it appears in insulated basins, and possesses a superior perfection. This carbonaceous deposit is found above the mountain limestone, and below the new red sandstone. Its components are said by Dr. Thompson to be carbon, hydrogen, nitrogen, and oxygen, with some residues. Many of the veins of this sort of coal agree in their character, generally, yet have a specific difference. Into four sorts they have been, by Dr. Thompson, divided—and, firstly, he notices bituminous coal as being the most valuable for many purposes. It is called by some caking coal, because, at a red heat, it melts seemingly, and runs together. That property will be displayed in some more than in others of the same sort, just in the same proportion as bitumen shall be found in its constitution; and they are generally valued as this quality shall be possessed by them. Sometimes it is called Newcastle coal, because in that basin they are found in their purest state. It is also found in other places, but not in such abundance. It is said to contain—carbon, 75.28; hydrogen, 4.18; nitrogen, 15.95; and oxygen, 4.58. The second is called splint, or "splint" coal, because of the splintery appearance of its cross fracture. It is sometimes called hard coal, from the difficulty with which it is broken. This does not run together at any temperature, but makes a clear bright and blinding fire, and leaves a small residue. The veins of this sort are generally less than the preceding, and we have seen it to be accompanied with an equal part of rock or rough coal, in the same vein, when they were quite separate and distinct. Its constituents are—carbon, 75; hydrogen, 6.25; nitrogen, 6.25; and oxygen, 12.50. The third is called cherry coal, from its appearance; it is found both in Scotland and England. It is said to be similar to caking coal in some points, but much more fragile and liable to waste. Its constituents are—hydrogen, 12.40; carbon, 74.45; nitrogen, 10.22; and oxygen, 2.93.

The fourth variety is denominated cannel coal, because it will burn like a candle or torch. We have seen this sort overlying the other coals in the same vein. We have seen small ornaments occasionally made out of it. Smoothly it will dress. It is not very abundant, and not very serviceable. Its constituents are said to be—carbon, 64.73; hydrogen, 21.56; nitrogen, 13.73; and oxygen, 0.90. To the above may be added, perhaps, the eld coal of South Wales, which seems to pass from a partially bituminous to a sort of anthraciteous coal, and then into a pure anthracite coal, as it passes on to the north-west side of the basin.

The third general division is pure anthracite. This coal has not been used extensively, except for domestic purposes, and melting, until very lately, and now it seems to be found useful for the smelting of iron with the hot-blast. It possesses a large proportion of carbon, but is exceedingly difficult of combustion. When, however, it is properly ignited, it makes a sweet fire; and, by the testimony of many judicious persons, examined on the late trial with Mr. Crane, it seems to make very strong iron. It is to be hoped that in the many efforts now making by the anthracite association, something may speedily be elicited that will render this sort of mineral produce exceedingly valuable, and that a fair return shall be made to those who have so largely embarked their capital in this part of the Principality. Besides the above specified substances, coke made from many of them, and charcoal have been successfully employed. The coke seems, however, to vary considerably in its quality, as well as in its appearance, and therefore should be known and always distinguished, in order to apply it properly. To this end we may be allowed to bow a few remarks from the researches of a late distinguished individual. Coals coked from the splint variety he describes as angular coke, because such do not lose their form in the coking process. Secondly, those which do partially lose their angles or edges in the coking process he calls partially bituminous. Thirdly, those that not only lose their angles, but also considerably lose their form in coking, he calls semi-bituminous.

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coals. Fourthly, those that either in whole or in part dissolve and enter into fusion, forming a compact mass, he calls decidedly bituminous; and, fifthly, the remaining sort of iron-making coal—viz., anthracite coal, does not form a coke in the proper acceptance of the term. Hydrogen and water escape during the process of distillation, but there is little or no reduction of size, and no new arrangement. The fracture and conchoidal form are retained unaltered, with only a slight exterior alteration. Coal that is only anthracitic seems to possess, in a measure, the above property.

Besides the coal or coke, or charcoal, another substance for making iron is needed as a flux—this is generally limestone—for while the decalcifying process is going on, impurities are thrown off, and need to be carried off by the slowly-applied flux, or there can be no good iron made. To all the common ores or ironstones that are used, limestones are found useful; but where the ironstone is purely calcareous, then other, and argillaceous substances, may be employed. Limestones are various, yet in their general properties they may not be very variable; yet it becomes the manufacturer of iron to try well his flux, unless it has already been proved, and even then a great difficulty will present itself in fixing a standard that will suit every place and every sort of material. The introduction of the hot-blast, we are informed, has a tendency to abate the quantity of limestone, and even with it a great variation in the charges will often have to be made by the superintendent, according to the state of the furnace, weather, and quality or quantity wanted. For while the ore is presented with a sufficient quantity of fuel to take up the oxygen from the metal in a sort of metallic perspiration, another substance, suitable in quality and quantity, must be found and applied that will unite with the earthy part of the ore, and carry them off in a this lava. Thus, then, three great springs of action are in operation in the manufacture of iron. Firstly, the metal must be revived; secondly, it must be revived with a sufficient quantity of carbon, or a sufficient quantity of carbon must be found that will infuse itself into the ore; and, thirdly, earthy matter must be associated with a proper flux, that the impurities may be carried off in lava.—*Com. Assn., Feb. 27.*

## LAW INTELLIGENCE.

### VICE-CHANCELLOR'S COURT—MARCH 15.

**TURNER v. TRELAWNEY.**—The arguments in this case (briefly noticed last week), which have occupied the court for several days, terminated this morning. The main circumstances of the case are the same as those which have appeared before the public in the proceedings which have taken place under the bankruptcy of the Messrs. Gundry, in 1820, and may be briefly stated as follows:—A joint commission was issued against John and Thomas Gundry, the owners of certain shares in the Wheel Vor and Wheel Vrah Mines, on the 30th of January, 1820, under which Humphrey Millett Grylls, a banker and attorney at Helston, and Charles Ward, were chosen assignees. On the 18th of February following, the assignees made an absolute relinquishment of the shares of the bankrupts in both the mines, it was alleged, without the concurrence of the creditors, and without having the shares of the bankrupts offered for sale. At the time of the relinquishment, Grylls indemnified Ward from all the consequences, and continued afterwards solely to manage the mine. Several meetings of the adventurers afterwards took place, and it was resolved, that a sale of the old shares should take place, and that a new division of shares should be made, the old adventurers taking the new shares, and new adventurers being also admitted into the concern. In June, 1820, a sale of the mines accordingly took place under an amicable suit, which was instituted for the purpose, in the court of the Vice-Warden of the Stannaries, and Grylls, who was the only bidder, was declared to be the purchaser for 18,000*l.* This, it was alleged, was done under a previous arrangement, that Grylls should be the only bidder at the sale on behalf of the new assignees, and that he should take eleven of the fifty shares "for himself and friends." In 1820 an order was made upon petition by Lord Lyndhurst, staying the proceedings in the old commission, and directing that a renewed joint commission should be issued. The order also contained a declaration that Grylls was to be considered as a trustee for the company in respect of the shares he took and retained, and also in respect of those he took for his friends, and further ordered that Grylls and Ward should be removed from the office of assignees, and that Hatten, Turner, and Brown, should be the assignees under the new commission. In 1831 the Master reported to the court that at the time of the relinquishment the mines were a losing concern, and that there was a prospect of their being stopped, in order which calamity it was determined to form a new adventure, and that Grylls, being a considerable landowner in the parish where the mines were situated, was prevailed on to take eleven fiftieth shares in the new adventure, for himself and friends, of which shares four were taken for Mr. Trelawney, the lord of the mines, three for the Duke of Leeds, and one between two persons named Horace and Pomeroy, the former of whom had since returned his share to Grylls. The matter coming on subsequently in the Court of Review, on some of the proceedings in the bankruptcy, the court was of opinion that, taking the whole transaction to be perfectly honest and fair, yet that the Master's report was nevertheless erroneous in finding the shares were resold, and directed that the three fiftieth shares he had reported to have been repurchased by Grylls, and resold by the duke to Grylls, was not the absolute property of Grylls, but were shares for which he was to be considered a trustee for the benefit of the creditors of the Gundrys. The present suit was instituted by the surviving assignee, under the renewed commission, against Mr. C. Trelawney, to whom four of the shares had been assigned, to obtain a declaration of the court upon the principle of the former decision, that he held the shares as a trustee for the general creditors, and that he might be decreed to transfer them, and render an account of the profits since 1820. The ground on which the suit was mainly resisted on behalf of the defendant, and on which it was said to show a distinction between Mr. Trelawney's purchase and the others, was, that Mr. Trelawney did not adopt the proposal of becoming a shareholder until after the sale, and that he had no notice of Grylls being an assignee, and that, therefore, Grylls ought to be held to have purchased as the agent of Mr. Trelawney. It was also endeavored to be shown, from the evidence, that the mines were in a losing condition at the time of the relinquishment, a large portion of them being actually mortgaged, and that the relinquishment was made with the consent of all the creditors, and with a view to relieve them from the responsibilities to which they were liable at that period.

Mr. Jacob, Mr. Richards, and Mr. Fullett, were counsel for the plaintiff, and Mr. K. Bruce, Mr. W. Fullett, Mr. Sharpe, and Mr. Steere, appeared for the defendant.

The Vice-Chancellor said it was one of the simplest cases ever brought before a court of equity. It appeared that Grylls, for general purposes, took active measures in respect of the mines, being desirous that they should go on, and feeling anxious for their prosperity. Soon after the Gundrys became bankrupt Grylls was chosen assignee, and it was thought proper that a relinquishment should be made of their share in the mines. Had the matter stopped there, there would have been nothing to complain of; but it did not, nor was it intended that it should. The parties went on to construct a new company, into the mass of which was to be thrown the property which the Gundrys had. Grylls became a proprietor of eleven fiftieth shares. They were taken "for himself and friends," by which his Honor understood that if any friends were willing to go shares with him they were at liberty to do so, and if not, that he was to take the whole himself. Then it appeared, in March a chaffering took place between Grylls and Woolcombe, about the shares which were taken for Trelawney, and then a correspondence ensued, from all which it appeared to have been understood that Woolcombe was to take for Trelawney those which were marked down to Grylls, "for self and friends." The rest was mere machinery. The real nature of the transaction appeared to his Honor to be, that it was not a purchase from Grylls, but a transaction by means of which Trelawney or his trustees merely paid a proportionable part of the whole purchase money, which was equivalent to the four shares. It was not a case in which Grylls first of all was becoming the owner of the shares, and selling them by distinct contract, for it was impossible to look at all the circumstances, and not to see that the ultimate payment by Trelawney was nothing more than what he denominated it in his answer—viz., "an adoption of the general transaction entered into by Grylls." This his Honor dealt upon more because it put an end to the question of notice. The circumstances, therefore, resolved themselves into this—that there was a surrender from the mass of four shares, subject to this loan arrangement, that when Trelawney came of age he or his trustees should pay his stipulated proportion. Grylls was merely an agent, and his knowledge would affect those for whom he acted. The real fact was a matter of course. Trelawney was holding with notice a certain portion of the bankrupt's interest in the mine, which was not conveyed to him in the legitimate manner, and must, therefore, account for all he had received, having all just allowances.

### BOURNE'S IMPROVEMENTS IN STEAM ENGINES, &c.

#### ROLL'S COURT—MARCH 15.

**BOURNE v. THE PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY.**—The object of the present application was to obtain an injunction to restrain the persons who lately comprised the Peninsular Steam Navigation Company, from selling three vessels called the *Spargenza*, the *Regent*, and the *Tiger*, to the newly chartered company called the Peninsular and Oriental Steam Navigation Company, into which the old company had fallen. The Peninsular Steam Navigation Company, it appeared, had entered into an agreement with John Bourne, dated the 7th of March, 1830, to allow him one-third of the profits arising from the saving of fuel, as a remuneration for the use of certain improvements in steam engines, and in boilers, furnaces, and stoves, of which the plaintiff was the patentee, and which were in pursuance of the agreement fitted on board the ships. Upon the formation of the newly chartered company, it was arranged that they should

purchase these ships, which they claimed to do free from any charge in respect of the agreement made with Mr. Bourne, who, in consequence, instituted the present suit to obtain a performance of the agreement. It was stated that the improvements had been introduced into the steam-ship *Liverpool* by William Fairbairn and Co., engineers, as the agent and under the control of the plaintiff, and though there had been saving of fuel, still there were disadvantages which counterbalanced the advantage, inasmuch as it prevented ready access to the machinery for the purpose of stopping or backing the ship. The defendants also insisted that the plaintiff had been using the vessels for the purpose of trying experiments, and not for introducing his patent apparatus. These allegations were denied by the plaintiff, who further insisted, in answer to a charge, that the power of the machinery was lessened by having to turn certain fans for the purpose of creating a strong current of air to drive the gas generated in one furnace through the red-hot coils of another furnace, for the purpose of consuming the smoke, that the rapid generation of steam for working the machinery more than supplied any loss of power occasioned by turning the fans—and which, he insisted, had been proved by a year's experiment on board the *William Farwell*.—This case occupied the Court several days. On the conclusion of the arguments of counsel yesterday (Friday) Lord Langdale refused the injunction asked to restrain the defendants from selling the several steam ships, without reference to an agreement entered into by them with the plaintiff in respect of his patent invention, on the ground that he, in making the alterations on board the vessels, had not performed the agreement in the manner intended.

### GREAT WESTERN RAILWAY COMPANY.

#### COURT OF CHANCERY—MARCH 17.

**JONES v. THE COMPANY.**—This was a motion respecting the payment of costs occasioned by the proceedings incidental to the transfer of a piece of land belonging to the plaintiff to the Great Western Railway Company. The arguments were commenced on Monday, and concluded this morning. The Lord Chancellor said, the question which he generally asked himself on the subject of costs was this, by whom was the suit rendered necessary? In this case the company had occasioned the expense in consequence of their having taken possession of the land without any offer to pay its value. His lordship therefore directed they should pay the costs of all the proceedings.

### IMPORTANT QUESTION TO COAL MINERS.

#### OXFORD CIRCUIT.—STAFFORD, MARCH 12.

**BANNISTER AND ANOTHER v. BANNISTER AND OTHERS.**—This was an action for work, and labour, and materials, and an account stated. The plaintiffs are what is called in this part of the country "butty colliers," whose business it is to raise coal from the pits belonging to coal proprietors, receiving payment from them according to the quantity of coal brought up. In the course of their employment underground and it is necessary to make "air headings" for the purpose of admitting air from above to the workmen below, and also "gate roadings" to enable the workmen to pass along to the different parts of the coal mine; and it was to recover compensation for work of this description, and for "undergone coal," which may be described as coal undetermined, for the purpose of working it more effectually, that the present action was brought. One of the defendants, George Bannister, a son of one of the plaintiffs in the action, suffered judgment to go by default. It appeared from the evidence that the defendants employed the plaintiffs to work in raising coal from the 27th of February, 1830, till the 21 of September, in the same year, when they discontinued their operations, and the defence set up was, that a custom existed that fourteen days' notice of relinquishment should be given, in order that the charterers or undertakers of the mine might procure assistance from other quarters, and that no such notice had been given in the present case.

Witnesses were also called to prove a custom for the in-coming butty collier to pay the outgoing for air headings, gate roadings, and undergone coal, and it was stated that the outgoing collier received nothing, in the absence of any agreement to the contrary, from the coalowner for work of this description, if the mine ceased working, but that he, or his representatives, had a sort of lien on the mine, which was satisfied when the working of the mine was resumed. On the other hand, the plaintiffs proved that the air headings, &c., had been measured by a surveyor, with the assent of Mr. George Hickman Bond, one of the defendants, and had been valued by him at 149*l.* 17*s.* 6*d.* that a written notice had been given, and that Mr. Bond had written a note to the plaintiffs, dated the 10th of September, 1830, stating that if they would send the next morning at nine o'clock, and bring or send the tools, they should receive the amount of the valuation. They also called the clerk of the works at the Tivdale Colliery, to show that there was no custom for the outgoing to receive payment for the air headings, &c., from the in-coming butty collier.

Mr. Baron Gurney left it to the jury to say whether they would give evidence to the witnesses for the plaintiffs or the defendants. The testimony was conflicting both as to the notice, and the custom, but as to the custom he must say that it appeared to him that the right of the outgoing collier to receive payment for his extra work ought not to be indefinitely postponed till some other collier might undertake the working of the mine.—The jury found for the plaintiffs—damages, 149*l.* 17*s.* 6*d.*

### THE WEST MIDDLESEX AND INDEPENDENT ASSURANCE COMPANY.

Mr. Connell, of the house of Richardson and Connell, Scotch parliamentary agents, of Finsbury-street, made a statement before Sir Peter Laurie, at the Mansion-house, on Thursday last, respecting the atrocious system of robbery carried on by the West Middlesex and Independent Assurance Company. Mr. Connell attended at the request of Sir Peter Laurie, who mentioned that he had received a vast number of communications on the subject of the plunder carried on by the persons who called themselves the managing directors of the company, and whose former condition he was prepared to represent particularly, in order to show the public how necessary it was to inquire into the character of every concern in which pecuniary matters were transacted, and to show to Parliament that an investigation ought to be at once commenced into the conduct of the company especially alluded to.

Mr. Connell said the case of which he had to speak regarded the department of premiums upon insurance upon lives. He had received a letter from Scotland, dated the 24th of December last, enclosing a letter of credit for 157*l.* 10*s.* 3*d.*, with instructions to pay that sum as premiums on three policies of insurance of the Independent and West Mid. Ass. Co. and Fire Assurance Company, numbered 205, 206, and 207, for 1000*l.* each, and to receive the receipts. He was anxious to see the people of the company, and he went himself to the office in Baker-street, and asked to see Mr. Knowles, the resident manager. A person of tall stature, who said that he was Mr. Thomas Knowles, and seemed to be about sixty years of age, made his appearance, and he (Mr. Connell) said over to him the money of his clients, and received the receipt. It was certainly with reluctance that the money was paid, but the instructions were positive.

Sir Peter Laurie—A few days' delay would have been sufficient to justify your refusal to send out the instructions. Did you see any body else?—Mr. Connell—No, I had doubts about paying the money.

Sir Peter Laurie—Were there any clerks in the office?—Mr. Connell—There were two or three in the room below, but I was upstairs in what was called the manager's room. One of the persons who looked in was, as Mr. Knowles said, his son.

Sir Peter Laurie—There has been nothing so flagrant as this system of villainy for a great number of years, and the whole scheme was got up by these two fellows, Knowles and Hale. I have been an eye-witness of the individuals who were in possession of the receipts upon these policies, are now in workhouses. I have given merely the initials of a few whose names were requested that the names should not appear.—Ann Fyvie, Gloucester, 205*l.*; J. B. Edinborough, 206*l.*; Joanna Austen, Exeter, 80*l.*; Miss White, Nottingham, 207*l.*; Emily Barber, London, 40*l.*; Mary Newman, Whiteley, 205*l.* 206*l.* 207*l.* (per annum); Grace Hichman, Suffolk, 100*l.* (per annum); Jacob Back, Birmingham, 205*l.* 206*l.* 207*l.* (per annum); Maria Smith, Newbury, 100*l.* (per annum); Samuel Craig, Armagh, 205*l.* 206*l.* 207*l.* (per annum); L. B. Plymouth, 205*l.* 206*l.* 207*l.* (per annum); Mr. L. Langens, Waterford, 205*l.* 206*l.* 207*l.* (per annum); Miss Taylor, Dover, 205*l.* 206*l.* 207*l.* (per annum); A. B. Kildesminster, 205*l.* 206*l.* 207*l.* (per annum); Mrs. Hartley, Weymouth, 205*l.* 206*l.* 207*l.* (per annum); John Harrison, Poole, 205*l.* 206*l.* 207*l.* (per annum).—Total, 78*l.* Now, most of the amountants are poor people, who had given all their hard and honest earnings to the world to Messrs. Knowles and Hale and Company, in the full belief that they should receive the large per centage which the prospectus promised. I perceive in the *Warwick Journal*, an account of an orphan of 10 years of age, whose father, Thomas Higge, whose death by his own hand was accounted for by the death of his wife, and the loss of 100*l.* which he sustained in the West Middlesex Assurance Company.

Mr. Connell said it appeared, if their numbers were right, that they had issued receipts of 2000 policies, but perhaps the numbers were like those of many of the wagon makers.

Sir Peter Laurie was of opinion that this large per centage, and the dash which the company cut with their employees, must have brought to them an immense number of customers. He had heard from several who were anxious to have the receipts pushed, but were ashamed to appear.

Mr. Barrett, the governor of St. Andrews street prison, stated that Thomas Knowles, the managing director of the Independent and West Middlesex Assurance Company, was committed to that prison on the 10th April, 1830, at the suit of the Vice-Chancellor, &c., and was discharged under the Insolvent Act in the following August, but did not leave the prison until the 21st of November, 1830, which made the term of his imprisonment upwards of six months. Knowles, who had been starved of sleep of the watch, a deal to see him (Mr. Barrett), on the day of his final discharge, and, with tears in his eyes, requested the loan of some money to redeem a suit of clothes which were in pledge, and without which he was ashamed to re-enter home. The sum of 1*l.* 10*s.* was accordingly lent him, for which he handed to the governor a written acknowledgment, since put up in the hands of Sir Peter Laurie, and made the most solemn assurances that the money should be most gratefully repaid. Not a farthing was, however, ever got from him, though several applications were made to him, by letter and in other ways.

Sir Peter Laurie—Has any search been made in the books for the name of this managing director of the company?—Mr. Barrett—It appears from a search which was yesterday made, at the Court for the Relief of Insolvent Debtors, where Thomas Knowles's last schedule was inspected, in which he is described as of No. 1, Lion-terrace, St. Edmund-street, out of bankruptcy, that he had taken the benefit of the Insolvent Act, &c., in 1828 and in 1829, and that he was a bankrupt in 1829, and that he had contributed to the same in 1828.

Sir Peter Laurie—And now he is possessed of an immense fortune. I under-

stand that he and Hale have houses in Hyde, and in Edward street, Portman-square. These ought to be at once taken possession of for the benefit of the creditors.

Mr. Barrett expressed his surprise that the books at the Insolvent Court were not frequently examined. For one shilling's worth of examination, thousands might be saved, for the schedule told a great many things which would put people on their guard. Now, if any body saw what he had stated about Thomas Knowles on the books of the court, was it possible that the names would be deposited in the hands of such a person as that insolvent and bankrupt?

Sir Peter Laurie thanked Mr. Connell and Mr. Barrett for having come forward on this occasion, and said that he should call upon those who had been planned to apply to the respective committees of the places in which they resided to demand in the strongest manner a parliamentary investigation into the whole of the nefarious transactions of the company. He contended that, offering itself, became a representative of the people so well as a firm and energetic effort to punish such systematic villainy, and to prevent, by a legislative enactment, the perpetration of future robbery by assurance companies.

### MINERAL RICHES OF BELGIUM.

The *Fossil* (a Brussels paper), in enumerating the mineral riches of Belgium, passes over the beds of coal in the kingdom, as all the world is supposed to know that it contains large stores of that valuable product. But few persons, even in our country (the writer continues) know the rich mines of iron, lead, zinc, the immense quarries of marbles of all kinds, slates, and even stores of compost, that Belgium possesses. We will divide our description of the mineral wealth into provinces. That of Hainault, where we reside, will be more particularly noticed. The geognostic description of Hainault is simple and easy. In the north, to the Sambre, this province presents a continued plain, the undulations in which are produced solely by the courses of the rivers, and are generally scarcely perceptible. Here the surface is composed of sandy or alluvial beds that the waters have deposited. At the valley of the Sambre the aspect of the country changes, the surface becomes more varied, the valleys are more numerous, and the sides of the hills more steep; the rocks present on all sides their denuded strata, their inclinations sometimes disrupted, but obeying generally a uniform order. In the environs of Mons, and even near to Charleroi, the coal strata are covered with beds of chalk or sand, but at those points the strata crop out, and discover their riches to the cultivator of the soil. In pursuing the course of the Sambre, which appears to pass over a tract of land almost identical in one part of its course, we come soon to the old sandstone formation on which the coal seems to rest. One fact, that every one must remark, is that this land appears more suitable to the growth of trees than to annual culture, whether it be that the soil absorbs the water too readily, or whether it is naturally arid, the sandstone offers great difficulty to the farmer. The miner sometimes finds in this place hidden riches under the form of hydrate of iron, but this does not often occur. The calcareous earth, which immediately succeeds, is much richer. It can be cultivated, but it requires care and particular manures, without which it is cold and unproductive; but it contains in abundance all the minerals that constitute the power, the riches, and happiness of a people, who know how to profit by them—viz., iron, copper, lead, zinc, silver, marbles, plastic clay, &c. In the province of Hainault this mineral formation forms a large and very extended band. In some parts it touches on the coal beds; in others it is separated from them by the band of red sandstone. Its average breadth is from ten to twelve leagues, and it terminates on the schistose strata beyond Couvin.

Only those iron ores near the surface of this calcareous district have been hitherto worked. The deficiency of easy internal communication, by making these imperfect products an exorbitant price, have prevented also the working of the richer veins which lie deeper under the surface. The valley of Heur traverses these strata at their greatest breadth. The access to the richer veins of iron ore would greatly increase the produce of the blast-furnaces, by improving the quality and diminishing the price of iron; and if to that advantage be added the means of conveyance at a moderate cost, there is no doubt we should be able easily to compete with the English in all the markets of Europe and in America. The strata of calcareous earth contain also numerous veins of oxide or carbonate of lead. Many very rich ores exist in the neighbourhood of Philippeville. Hitherto they have not been explored otherwise than by idle peasants, who sell the produce in loads to some founders in the province of Luxembourg. Sometimes they reduce the metal themselves, in small excavations formed in the ground, and by means of a pair of blacksmith's bellows. These indications serve to show the value of the discoveries that would be made if the country were sufficiently accessible to encourage able and active miners to pursue their researches there.

We will not now particularise the other mineral products which are often found in the transition rocks between the limestone and schists; but we must not omit the numerous and valuable beds of slate in the midst of the provinces of Hainault and Namur. These stores of wealth, which would be very valuable if there were an easy means of conveyance, are at present without value, because they cannot be conveyed along the Meuse, excepting on payment of dues that are altogether prohibitive. The proposed railway between the Sambre and the Meuse would be eminently adapted to bring these valuable products into demand. We have not yet spoken of the immense forests which cover the surfaces of a great part of the provinces of Hainault and Namur. These forest-commence in ascending the valley of the river d'Heure, two leagues from Marchiennes-au-Pont, and continue almost without interruption to the French frontier, near Rocroy.

### MINE ACCIDENTS.

**Accident near Hamilton.**—Eleven lives lost.—On Tuesday last, the town of Hamilton and neighbourhood were thrown into great consternation on hearing of an extensive explosion of fire-damp in the coal mine situated near Quarter, accompanied with the loss of eleven lives. On replying to the spot the account given of this melancholy event proved too true. It appears that about eight o'clock that morning (the breakfast hour), there were six men and a boy in the mine, all of whom, it was too plain, must have perished instantly by the explosion. On the alarm, the overseer of the mine not being at hand, seven men, who were on the outside of the mine, spontaneously, and under the impulse of humanity, and vainly hoping to aid their fellow-creatures in the midst of this dreadful calamity, rushed thoughtlessly into the pestiferous atmosphere of the newly-exploded mine, three of whom were dragged out alive and four dead, by a third party, who, becoming alarmed for their safety, came to assist them. Unceasing exertions were made to relieve the mine of the noxious vapour, but it was not till Wednesday morning that the bodies of the seven first sufferers were recovered—some of whom were shockingly mangled by the explosion, in a way that evidently proved that the death of the whole of them must have been instantaneous. Of the eleven sufferers, five were married, which last have left widows and families. The noble proprietor of the mine, the Duke of Hamilton, who is now at the palace, was in the greatest distress on obtaining intelligence of the sad event, and immediately gave pecuniary assistance to the families of the sufferers, and has caused every exertion and arrangement to be made, at his own expense, as to the funerals and other matters suitable to the melancholy occasion. This accident was not owing to the negligence or unskillfulness of his Grace's overseers or engineers. The mine, which is an in-going eye or day-level, where the explosion occurred, was completely ventilated, being open at both ends to the day, having a current of air constantly passing through it; and on the morning when the accident occurred had been carefully examined by two overseers, and reported to be free from danger. It appears that the carburetted hydrogen had been instantly generated from certain fissures connected with a rise in the metals, the bad effects of which human foresight could not prevent. For the satisfaction of those at a distance, who may have friends employed at the Quarter coal-works, we subjoin a list of the sufferers. The first seven were in the mine at the time of the explosion, the remaining four went in to their rescue:—William Brownlie and his son, ten years of age; James Duffie, John Duffie, Hugh McLean, John Smith, William Wetherespoon, James Fleming, George Patie, James Fisher, and James Fife.

**Samp-house Colliery, Glasgow.**—We last week announced a dreadful explosion which had occurred on the previous Monday, at this colliery, by which six individuals were seriously injured. At the inquest, held on the body of one of the sufferers on Saturday last, John Charlesworth, after detailing the particulars of the catastrophe, said he was of opinion that if the Davy lamp had been used, instead of a naked candle, the explosion would not have taken place. They have plenty of Davy lamps at the works; but colliers were averse to using them, because they could not get on so fast with them. George Spottis, an in-coming man with the day before, had told him that "he was not paid for working with a Davy lamp." Mr. Duan (one of the proprietors) said a plan of the pit before the coroner, and offered some clever explanations of the nature of the works, by which it appeared that the part where the explosion took place is not one in which the general work of the colliery is carried on, but where excavations are making to aid in the drainage and ventilation.

**Lancashire Coal Miners.**—Most of the turn-out men of Oldham and the neighbourhood, we are informed, have returned to work on the masters' terms; a number of those known to have been most active in the strike have been refused.



The *Moscow Gazette* states that the Germanist Diet has voted a remuneration of 100,000 Reichs (250,000fl.) to the inventor of the electro-magnetic machine to supercharge steam engines.



## MEETINGS OF SCIENTIFIC BODIES.

## IN THE ENSUING WEEK.

SOCIETY.	PLACE OF MEETING.	DAY.	HOUR.
Royal Asiatic	14, Grafton-street	Saturday	2 P.M.
Royal Geographical	21, Regent-street	Monday	9 P.M.
British Architects	16, Grosvenor-street	Monday	8 P.M.
Royal Medical and Chir.	53, Berners-street	Tuesday	8 P.M.
Civil Engineers	25, Great George-street	Tuesday	8 P.M.
Zoological	28, Leicester-square	Tuesday	8 P.M.
Architectural	35, Lincoln's Inn-fields	Tuesday	8 P.M.
Royal Botanical	49, Pall-mall	Tuesday	8 P.M.
Society of Arts	Adolph-street	Wednesday	7 P.M.
Geological	Riverside House	Wednesday	8 P.M.
Royal	Riverside House	Thursday	8 P.M.
Antiquaries	Riverside House	Thursday	8 P.M.
R. Society of Literature	St. Martin's place	Thursday	4 P.M.
Royal Institution	Albemarle-street	Friday	8 P.M.
Westminster Medical	Exeter Hall	Saturday	8 P.M.

## PUBLIC COMPANIES.

COMPANY.	MEETINGS.
New Granada Mining Company	12, Austinfriars March 25 3.
Grand Collier Dock Company	3, Winchester-buildings 25 12.
Newcastle and Carlisle Railway	Assembly Rooms, Newcastle 26 12.
Tyne Docks	Golden Lion, South Shields 26 12.
Dublin and Kingstown Railway	Office, Dublin 26 12.
West London Railway	11, Abchurch-lane 29 11-12.
Great Western Charlotte Mining Ass'n	George and Vulture Tavern 29 2.
General Filtration & Dye Extract Co.	Evans's Hotel, Covent-garden 30 1.
British Gas Light Company	11, George-yard 31 1.
Cannock Iron and Spelter Works	21, Moorgate-street 31 12-1.
Chelsea Water Works	61, Queen-st., Westminster 31 1.
Bahia Steam Navigation Company	George and Vulture Tavern 31 11-12.
Booths Tin Mining Company	George and Vulture Tavern 7 1.

COMPANY.	MEETINGS.
Royal Bank of Australia	St. March 31. Office.
East Treadmill Mining Company	10, April 10. Barclay, Bevan, and Co.
Wheat Leas Mining Company	10, April 10. Barnett, Hoares, and Co.
Peabody Mining Company	14, April 10. Bosanquet and Co.
South Australian Company	24, April 10. Ladbroke and Co.
Rio de Janeiro Gold-stream Works Ltd.	May 22. Stone, Martin, and Co.
Cambrian Iron and Spelter Co.	24, June 1. London Joint-stock Bank.

## NOTICES TO CORRESPONDENTS.

**GRANT "WINNING" AS DAYTON.**—We received the continuation of the paper on Mining Operations in South Durham, by Edward Stanley, Esq., too late to admit of its insertion in the present Journal.

**DURHAM COUNTY COAL COMPANY.**—We thank our correspondent, "W. M." (York) for the information which will be particularly acceptable.

**BRITISH IRON COMPANY.**—The letter of "A Well Wisher to the Bill of Discovery," will appear next week.

**WE ARE indebted to our contemporary, the "Mechanics' Magazine," for the illustration of the description of Messrs. Arthur and Eddy's Apparatus for Raising Mine Pumps, in another part of the Journal.**

**RECEIVED.**—Veritas—"A. Gieseler's Geological Survey of the Province of New Brunswick;" A. Bulmer—"A Constant Reader;" H. T. "Rathdrum;" "W. B."—"J. Callan;" J. H. Shears.

THE MINING JOURNAL,  
Railway and Commercial Gazette.

LONDON, MARCH 20, 1841.

We have, on several occasions, advocated the deposits of plans and surveys of mines, and the correspondence inserted in the Journal for the past few weeks on mine surveying, induces us again to revert to the subject. The establishment by Government of the Museum of Economic Geology, is the first step towards the accomplishment of an object which cannot be viewed otherwise than as one of national importance—embracing not only a museum or collection, of geological and mineralogical specimens, but also preserving the records of mines, with plans and sections. It is, we feel, unnecessary to advance any argument in favour of the registration or deposit of plans, as the vast sums of money which have been expended—the melancholy accidents which have arisen (attended in many cases with loss of life, from communications made with old workings), being sufficient in themselves to point out the importance of an office for records. As an establishment, under the auspices of Government, it is the first step towards a School of Mines, as it opens to the practical man the means of acquiring and communicating information, and, by reference to the plans and modes of working adopted in various districts, the means of comparison—the advantage of which all must appreciate. We cannot, indeed, too strongly impress on all associated with mining enterprise, the benefits which must accrue from depositing copies of plans and sections in the museum, to which reference can at all times be made; the cost is so insignificant, that we feel it is only to direct attention to ensure the co-operation of those who possess liberality of mind, and who are anxious to promulgate information. We trust, then, that all parties will lend their aid to carry out the objects of Government, and that, ere long, the office, or depository, of mining records, will be consulted with advantage by the mining community, and the benefits derivable be duly appreciated. We have, in the interim, only to impress on our readers the desirableness of copies of plans being transmitted to the curator, for the advantage, not only of those interested immediately in the workings, but of the public at large, as being an encouragement to mining pursuits, and calculated to advance the mining interest.

Our attention has been drawn, by a correspondent, whose letter appears in another column, to the bill introduced by Mr. HAWES, with the object of establishing a medical board, which, at first sight, we confess, did not appear to us calculated to have any effect or influence on the mining interest, but inquiry has satisfied us that the mines of this country are more likely to be affected than would at first be apparent. The clauses of the bill, in the appointment of a medical board, directly attack the mining industry of this country, as regards our sulphur ores, and will tend more than any one other legislative enactment could do to advance the interests of his Volcanic Majesty, the King of the Sicilies, by the use of foreign sulphur. It is contended, on the part of the promoters of this bill, that all munda, iron pyrites, or sulphur ores, of this country, possess more or less arsenic, in combination with the sulphur, and hence that they should not be used, as arsenic, being a volatile body, combines with the sulphur, and hence a deleterious compound. We have not space to enter into the subject, but thus briefly draw the attention of those interested in sulphur mines, that they may protect themselves in committee, or induce their representatives to have the proposed clause so altered, that under any circumstances it shall be confined to the sulphur made and used for medical purposes.

On reference to the Parliamentary proceedings, we find that Mr. HAWES failed in an attempt to get his bill read on Wednesday

night; shortly after the commencement of the discussion, it was discovered that there were not sufficient members present to make "a house"—a good proof of the opinions entertained of the measure by honourable members.

We last week inserted the letter of a correspondent on the slave trade, applying to the mines of Brazil and Cuba, and the movement lately made by some shareholders in the Imperial Brazilian Mining Company, whose philanthropy and proper feeling on this question is so praiseworthy, causes us to take up the subject, as one which is highly deserving the attention of all who may be embarked in foreign mines, where slave labour exists. We find in the reports of the Imperial Brazilian Mining Company, that, in taking stock, the value is set upon the slaves in the same manner as produce, stores, or materials, and, in case of the suspension of operations at Gongo Soco, the consequence would be, that the slaves, who have by their labour yielded the returns from which the shareholders have obtained their dividends, would be sold, and turned over to some other party, being put up to obtain the highest price. When we reflect that 20,000,000*l.* was granted for the abolition of slavery—when the general hatred and detestation which Englishmen entertain to slave traffic is considered—we can hardly believe, that any one who professes the feelings or principles which should influence every Christian, should subscribe to a company, or allow the funds placed at their disposal to be applied to the purchase of human flesh. We have every reason to believe that, with the Gongo Soco Company, the situation of the slave is comparatively a state of happiness, compared with the free labourer of England, more particularly under the Poor Laws, as now established, where employment is wanting—but it is the principle we deprecate; and, indeed, it appears to us only necessary to direct attention to the question, to secure that unity of action which is essential to putting down a system so abhorrent to our nature. We trust that the gentlemen who have taken up the subject will follow it out—success must attend their exertions, and the good wishes of all, with the prayers of the enslaved, will accompany and prosper the cause they advocate, supported as it is by all those kindly feelings which Christianity inculcates.

## ON THE PREPARATION OF THE WHITE OXIDE OF ARSENIC IN CORNWALL.

BY W. J. HENWOOD, F.R.S., F.G.S., &amp;c.

It is well known that the ores of tin are often so mixed with those of copper and iron, that their separation is an operation of much difficulty and expense. This is greatly facilitated by roasting them in a common reverberatory furnace, whereby the specific gravity of the two last is much diminished, and the sulphur and arsenic with which they are combined are expelled. This poisonous mixture is prevented from injuring vegetation in the neighbourhood of the furnace, by being passed through a very long horizontal flue, or by being conveyed into a large and close chamber in which it is deposited.

The substance thus collected consists almost wholly of sulphur and arsenic, and it was for many years rejected as utterly worthless. About thirty years since it was thought, however, that the white oxide of arsenic might be extracted from it; this was successfully attempted by the late Dr. Edwards, who established a manufactory for the purpose near Parnewell, which was long the only one in the United Kingdom. Within four or five years a second has been erected near Bissos-bridge, and a third has been more recently set at work near Redruth.

The materials are now collected from the burning-houses in all parts of Cornwall; and the principle adopted in their separation is the difference of temperature at which sulphur and arsenic sublime—the former being about 300 deg., the latter 330 deg.

They are first put into a common reverberatory furnace, having a very long flue, and the heat is so slowly increased as to dissipate the sulphur before the arsenic is volatilised; and this is assisted by means of small fires communicating with the flue in different parts, by which means the sulphur is carried far on it. The temperature is then carefully raised, and the arsenic is driven off, but as the arsenic requires a greater heat than the sulphur, it is therefore more readily deposited on the sides of the flue. When this has been continued for a sufficient time, perhaps weeks, or even months, the fire is extinguished, the flue is opened, and its contents removed. The finer and purer parts of the arsenic are found, in a crystalline state, nearest to the fire; and as the distance from it increases, it is more and more mixed with sulphur: this is again placed before the furnace for a repetition of the process.

The purer portion is now introduced through a hole at the apex into conical cast-iron retorts of about 2 ft. 6 in. high, and from 1 ft. 3 in. to 1 ft. 6 in. in diameter at the base. The broader ends of these are clamped to an iron plate, which forms the upper side of a flue from a rather small but very brisk fire, and the joints are closed by luting; the aperture at the top being shut by a plain iron stopper only. When the workman thinks that the first charge has been all sublimed, he removes the plug, and through a funnel introduces a further supply, and so on until he imagines a sufficiently thick crust has been deposited within; the clamps are then taken off, the retort is conveyed into the open air, and its place is supplied by another.

These, whilst at work, are placed beneath a dome opening into the external air, in order that the labourers may not be injured by inhaling the mixture of vaporised arsenic with the atmosphere of the workshop. The arsenious acid thus lining the retort is usually about an inch thick, and is very easily removed; it is of a pale amber colour, and in that state large quantities of it are sold; sometimes, however, it is reduced to powder, and this is done in a grist mill of the ordinary kind. This method is essentially different from the German mode, described by Mr. Vivian. (*Cornwall's Geological Transactions*, I. p. 61).

All attempts to prepare orpiment and regular (the red and yellow sulphurets of arsenic) in Cornwall, have hitherto been useless; and experiments on the extraction of arsenic directly from the arsenical pyrites, have been, in point of economy, equally unsuccessful.

It is not easy to ascertain the quantity of arsenious acid manufactured in this country. In 1826, eighty-three tons of it were shipped at Pezryn (*Cornwall's Geological Transactions*, III. p. 360); at present, I believe, not less than from 600 to 800 tons are prepared annually.

**JOINT-STOCK COMPANIES IN BELGIUM.**—The second chamber of the Court of Appeal at Brussels lately made a decree of great importance concerning commercial companies. It is known that the statutes regulating most of these companies contain a clause which confers on the shareholders an annual interest of 3 per cent., independent of any dividend. The question having arisen whether a shareholder can demand payment of this interest when the company has not derived any profits, or even when it has sustained loss, a decision was given in the affirmative. The Court of Appeal, from motives arising from the special contract which was submitted to it, as well as from principles by which joint-stock companies are regulated, reversed this decision. The decree declares, that such a claim, founded on the letter when loss is sustained, or no profits are derived, being liable to abuse, and injurious to others, ought to be considered immorally opposed to public order, and not obligatory.

**BATHING ASSOCIATION.**—We understand that the visit of the association to this neighbourhood is postponed from July to August. This will give the members an opportunity of witnessing the launch of H.M.S. *Hindostee*, which is ordered to be got ready for launching in that month. It is hoped a number of the association will meet on Tuesday next, when the office committee will report progress. The subscription towards defraying the expenses of the visit amounts to about 600*l.*—*West of England Conservative.*

## ORIGINAL CORRESPONDENCE.

## SULPHUR ORES—PROJECTED MEDICAL BOARD.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—I beg to call your attention to a bill brought into the House of Commons by Mr. Hawes, for establishing a medical board. Its clauses are so objectionable, that they only require to be known to have the bill flung out altogether. Now that we have found a substitute for Sicilian sulphur in the products of this country, and taught his Majesty of Naples a lesson which he never will forget, it is to be tolerated that our trade is to be hampered by a set of medical "Jacks" in office, which this absurd bill provides for? When I inform you that it may go to the extent of interfering with the production of sulphuric acid from the pyrites of this country and Cornwall, I know that I say quite enough to call your attention, and that of the mining interest, to the subject; and in your able hands I must leave it for the present, for want of time. I cannot, however, conclude this hasty note without expressing my astonishment that Mr. Hawes should be the member to bring in this bill—a gentleman who knows well the great importance of producing from the pyrites this sulphuric acid, by which we first make sulphate of soda, and then alkali, which he must use extensively in his soap-boiling concern.

The public should be made aware of the fact, that the use of these pyrites has nearly excluded the use of foreign sulphur, and that in place of importing potash largely from America, we are now exporting the alkali extensively to that country, and that any interference would bring Mr. Hawes and the other soap manufacturers back to the use of kelp barilla, and those sort of things, which would nearly double the price of that essential article. The King of Naples publishes his edicts, first giving a monopoly of his sulphur mines to a French company, and, when driven from that, appointing a commission to regulate the trade, by which means he loses this trade for ever. Mr. Hawes brings in his bill appointing a board to hamper our trade, and restore it to him. It is too bad to see the enterprise and industry of the country thus interfered with.

I remain, Sir, your's, &amp;c.

*Sulphur Mines, near Rathdrum, Ireland, March 9.* J. S.

P.S.—Respecting the health of persons engaged in those works where pyrites is used, I may observe, that I have visited the establishment of Mr. Muspratt, one of the largest in this kingdom, and have seen several men who have been twenty years and upwards engaged there, every one of whom has a much healthier appearance than Mr. Hawes.

[The importance of the question treated upon by our correspondent, will, doubtless, excite attention, and effect the object of the writer. We have made some remarks treating on the subject in another column.]

## ACCIDENTS IN MINES.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—The Committee for the Investigation of Accidents in Mines has granted me permission to transmit you a copy of Professor Chevallier's statement of the system of study in civil engineering and mining at the University of Durham. Perhaps in doing so you will permit me briefly to state, that this committee, which was organised immediately after the last dreadful explosion in one of our northern mines, by which fifty-two lives were lost, has been pursuing its important object with a zeal and perseverance that hope has encouraged, and which augurs well for a favourable result. The most intelligent and able viewers of the north, in the various visits of this committee to their mines, have received it with much courtesy, and facilitated its investigations personally and by every means in their power. It has been in communication for more than eighteen months with many of the most scientific men of the kingdom, from whom several valuable suggestions have been received. Under its superintendence the comparative security of the different safety lamps, as Davy's, Clanny's, Upton and Roberts's, &c., has been tested, and, by the kind assistance of the Belgic Embassy, it will shortly be in possession of that of M. Lemielle, so favourably reported on by the commission of that country for a similar purpose. Ventilation has engaged the particular attention of the committee, which will form an important feature of its report. The laws and regulations of foreign mines it has also examined, and has found a paramount attention paid by them to the scientific education of their mining officers.

Impressed with the importance of this subject, the committee held, by appointment, a conference with the Senate of the University of Durham on the 24th ult., considering that she had already gone far in the adoption of a system of education for that purpose, and all that was required was a Professorship of Practical Engineering and Mining, which you will observe, by Professor Chevallier's letter, the University is willing to adopt, but has not the command of funds (about 1200*l.* a year) for that especial purpose, and which the committee is now exerting itself to obtain for them. The advantages both to humanity and the mining interest of Britain, of a practical and scientific education being simultaneously pursued by the young officers of mines, are too obvious to require at this moment a word of argument.

It is fortunate for the coal mines that, in the very heart of the great district that supplies nearly one-fifth of that mineral to Britain, an institution is seated, with all the machinery prepared, and most of it in operation, for diffusing amongst them the improved lights of modern science. The difficulties that Sir Charles Lemon encountered in his splendid attempt to found an institution of this kind for the metallic mines, in the north have been already removed, so far as relates to its existence—a slight adaptation, already agreed to, and no very extensive fund, being all that are required to complete and set in motion for the coal mines this important object.

I remain, Sir, your's, &amp;c.

*South Shields, March 15.* JAMES MATHER.

To the Committee for the Investigation of Accidents in Mines, on the subject of a scientific education for the officers of mines.  
*University of Durham, March 2, 1841.*

GENTLEMEN,—In consequence of the wish which you expressed, at your late conference with the Warden and Senate, to be informed how far the course of education for students in civil engineering and mining, in the University of Durham, is capable of being extended, so as to be available for the objects which you have in view, I have the honour to send you a brief statement of that course of study.

The class of students in civil engineering and mining was opened in 1836. The full course of study occupies three years; but certificates of competency in particular subjects may be obtained after a shorter time. The following are the subjects included in the course of study—

Arithmetic—Algebra—Euclid—Logarithms—Plane Trigonometry—Solid Geometry—Analytical Geometry—Theoretical and Practical Mechanics—Differential and Integral Calculus—Dynamics—Hydrostatics and Hydraulics—Spherical Trigonometry and Astronomy—Pneumatics—Surveying—Levelling—and the Use of Instruments—Practical Mapping and Architectural Drawing—Theory of Perspective and Projections—Hydrostatics and Hydraulics in general—The Steam-Engine—Optical Instruments—Theoretical and Practical Chemistry—Theory of Heat—Mineralogy—Metallurgy—Geology—The French, German, Italian, and Spanish languages.

The progress of the students is tested by annual public examinations, and the extent to which the several studies are pursued, will be best understood by a reference to the examination papers set at the final examination in 1840, printed in the Appendix to the *Durham University Calendar* for 1841. By the regulations of the University (title vii.), persons who are not members of the University are admissible, with the approbation of the Warden, to attend any course of public lectures.

In addition to the theoretical instruction, the students are constantly engaged in the practical drawing of plans and machinery, and in levelling and surveying, under the superintendence of a competent instructor. They avail themselves of the facilities afforded by their neighbourhood to obtain an insight into the modes of working coal pits, and to conduct underground surveying. They visit also, under proper inspection, the principal public works, manufactories of machinery, iron works, &c., in the vicinity, and are required on such occasions to deliver written reports. Proficiency in those branches of practical work is encouraged by prizes devoted to that particular purpose. It will thus be seen that the course of study always established for students in civil engineering and mining requires but little modification and extension in order to meet the views of the Committee or the Investigation of Accidents in Mines. The principal addition required appears to be a Professorship of Practical Engineering and Mining, with an endowment sufficient to ensure the services of a person of extensive and high scientific character. To this it might be requisite to add some further encouragement to the students themselves, by the establishment of scholarships or other rewards, to be given according to the result of public examination. The object of such rewards would be both to diminish the expenses of promoting young men during their academic course, and to assist them for a limited time after they leave the University, until they might expect to become established in their profession.

The University of Durham, by having been the first academical body to establish a class of civil engineering and mining, has given proof of its anxiety to supply an acknowledged deficiency in the system of general education, and it is still willing to encourage further, in order to effect an extension of its plans. The University does not, however, possess the means of providing the funds necessary for this purpose; but it is confidently hoped that the increased interest felt in the subject—of which the appointment of the Committee for the Investigation of Accidents in Mines is a proof—and its national importance, with relation both to the security of human life and to the magnitude of the pecuniary interests involved, will not fail to secure the willing aid of those who are able to carry the proposed plan into effect.

I have the honour to be, gentlemen, your's, &amp;c.

TOMAS CRYSTALL.

Professor of Mathematics in the University of Durham.



## BRITISH IRON COMPANY.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—I am glad to see you have opened your columns to communications on the subject of the British Iron Company. The proprietors are indebted to you for this act of liberality—and there is no publication in which their affairs can be more advantageously, or more suitably, discussed than in the *Mining Journal*. One cause of the depressed and embarrassed position of the company, may be ascribed to the want of a wholesome publicity being given to their proceedings. It was resolved, at an early period, that neither the reports of the directors nor the half-yearly statements of account should be printed. The ground of this resolution was, the notion that, while the suit was pending, Mr. Attwood might turn to advantage the information thus afforded to him. The idea was a delusive one—Mr. Attwood had all the information he wanted, but the proprietors were deprived of the knowledge that would have been useful to them, for the mere reading of a report, or the items of an account current, at a general meeting, make but little impression on the memory. To render such documents available, they should be printed and circulated, and then the proprietors would have the opportunity of examining them at leisure at home. I believe it would be of advantage, even now, to have all these reports and balance-sheets printed in a pamphlet form, and then the shareholders would have the history of their unfortunate concern complete from the beginning.

I am not disposed to sanction the slightest imputation upon the honour and integrity of the directors, or their zeal for the service of their constituents—on the contrary, I believe them to be gentlemen of the highest character, and that they have laboured long and untiringly in the company's cause—not only without fee or reward, but at the sacrifice of much time, trouble, and anxiety. I believe, however, that the time is arrived in which their services can no longer be of advantage to the company. Nothing but a high sense of honour can have induced them to bear the heavy burthen they have borne for so many years; and there can be no doubt that they would gladly relieve themselves from an onerous and thankless office, if they could do so without imputation. I, for one, would readily accept their resignation, and join, with all sincerity, in a vote of thanks for their past exertions. I would do so, because I believe it would be for their advantage, and for the advantage of the shareholders, that the affairs of the company should be transferred into other hands. For what is the position in which the directors and managers now stand? They have fought the long and wearisome fight with Mr. Attwood, and have been defeated. He is flushed with victory, and will yield nothing—they are disheartened and borne down with ill success, and are preparing to capitulate at discretion. It is no use, say they, to contend any longer—the highest court in the realm has pronounced against us—law proceedings are dangerous and expensive—let us pay him his demand and be quit of him. But is it the interest of the proprietors to listen to this advice?—advice given honestly enough, but still given by wearied-out and dispirited men. It is true, the House of Lords have decided an important point against the company, but does that decision involve the payment to Mr. Attwood of the remainder of the purchase-money of the Congreave estate?—I apprehend not at all. What is the opinion of Sir W. Follett and the other five eminent lawyers to whom the case has been submitted?—they assert unanimously that it is not in Mr. Attwood's power to compel the payment; and if it were—how is he to wring it out of a body of proprietors, smarting under a sense of the injustice of that decision, and many of them impoverished thereby, almost to beggary? I, for one, never will consent to injure my own family, and fellow-suffering shareholders, by satisfying claims which Lord Lyndhurst, as sound a lawyer as Lord Cottenham, has unhesitatingly pronounced to be founded and steeped in fraud; rather let us wait a little, or, if necessary, a good while longer—for time has never proved a foe to truth and justice, but has ever been so to iniquity and deceit.

The shares of the British Iron Company, on which 60*l.* have been paid, are now, if the price (or no price) at which they may be obtained on the Stock Exchange is any criterion, absolutely valueless. A capital of 1,200,000*l.* expended in the purchase of mines, now producing about 40,000 tons of iron annually, would thus appear to be totally lost. But can this, by possibility, be the case? and if not so in reality, to what is the apparent semblance of such a fact to be attributed?—clearly to the dread of further calls acting upon an alarmed and impoverished proprietary. The position in which each shareholder finds himself, and the reflections which arise to his mind on looking into his concerns, with respect to the company, are these:—The directors assert that our affairs with Attwood are hopeless—there is nothing left for us but to pay. Well, then, some will pay, and others will not pay, and who are to make up the deficiencies of the latter? Can they be compelled?—No; some of them are absolutely unable to meet the demand; others (and a numerous body) set the law with which the directors threaten them at defiance. There are large arrears on the call due in July—larger still on that due in January. Are those that have paid these calls to be further called upon to make good those deficiencies?—surely there can be no justice in this.

The part of wisdom, then, and of discretion, of justice also, and manliness, is to continue the contest with Attwood, so long as he refuses to come to something like a fair compromise. The contract price of his estate is now admitted on all hands to have been at least fourfold greater than its value. Let us place our affairs in hands that will not meekly and unresistingly suffer him to have everything his own way. Let us have new directors, new managers, and new lawyers. Our position cannot be made worse than it now is, and who will say that it is not susceptible of improvement? I am, Sir, your's, &c.,

London, March 19.

No SURRENDER.

## EMPLOYMENT OF SLAVE LABOUR IN FOREIGN MINING ESTABLISHMENTS.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—I observe a laudable effort is now being made to direct the attention of the shareholders of the Imperial Brazilian Mining Company to the abolition of slave labour in their mines, and as I know many of the readers of your valuable Journal are shareholders in the Cobre and the Santiago Mining Companies copper ore mines, at Cobre, in Cuba, I would urge, through the medium of your paper, upon their consideration, the fact, not known to the majority, that these companies are proprietors of slaves, and have a slave force of 1,500 souls upon their establishments. The sacrifice of Cornishmen by death and rendered unfit for service, is about 28 per cent. per annum, and these men only overlook and instruct the slaves. The annual sacrifice of slaves I have not been able yet to ascertain, but I am informed that their covering, diet, and treatment are wholly at the mercy of the companies' agents, who work the slaves by night and by day, and on Sunday invariably; these facts cannot be controverted. It is the interest of these companies agents to raise the greatest quantity of ore per month, at the least possible expense, and the unfortunate slaves are tasked to accomplish this; and when the hired slaves are invalidated and "blown out," they are returned to their proper owners to light work on their grounds, who replace them in the mines with more vigorous slaves. These two companies are raising now about 3000 tons of copper ore a month, and, upon inquiry, I learn that the whole could be done by free labour instead of slave labour, provided the proprietors would be content to have a much less profit. If we receive 4*l.* per annum on a 10*l.* share in the one company, and 10*l.* per annum on the other company's shares, we have margin for humanity with profit. I wish that we could have a public statement from these companies' directors of the food allowed the slaves, their clothing, and hours of labour, and I call upon the directors to deny that they will not allow the slaves even a Sunday to rest. How can some of the shareholders, who pretend to be so punctilious in certain matters of morality and religious duties, reconcile this? and it rests with them its abolition or continuance. I question if British subjects resident in this country can legally be proprietors of slaves, and possess such vast establishments of them, under the protection of a British consul, even in the island of Cuba.

I remain, Sir, your's, &amp;c.,

Islington, March 19.

A SHAREHOLDER.

## WHERRY MINING COMPANY.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—As your valuable Journal is read with considerable interest by a great number of persons connected with mines—thereby obtaining information which they would not otherwise possess—I venture to ask you a few questions respecting a mine, which was wrought for the space of two or three years, and has, I believe, been given up a few months—I allude to the Wherry Mine. Is it abandoned, or is it intended to work it again? If not—how do the accounts stand? Is all paid, and is there a balance

remaining? If so—why are the Manchester shareholders kept in ignorance of the same? Some of the shareholders have paid 11*l.* per share, others 12*l.*, and some 13*l.*; and certainly, in common courtesy, there is due to the shareholders from the directors of the said mine, answers to the foregoing questions. I do not expect that you will be able to give the required information, but I address you, Sir, in the hope that this may extort from the directors that which ought to have been spontaneously given. The directors, I am given to understand, are all highly respectable men, residing in Penzance, and why they should so far have forgotten what was due from them, in this instance, is beyond my comprehension. If this has not the desired effect, through the medium of your valuable Journal, I shall feel compelled to write you again, with some particulars.

I am, Sir, your obedient servant,

Manchester, March 12.

A CONSTANT READER.

## ON BORING AND BLASTING.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—I hasten, though with considerable diffidence, to redeem my pledge, to send you the design of an instrument for boring large holes. Being but a mere theorist, my suggestions may be ridiculed by practical men, who, after the fresh gilding of novelty is worn away, too frequently discover that everything new is not an improvement. It is something, however, to make an attempt where it seems defeat is but another name for disgrace. "Let us eat and drink, for to-morrow we die," seems to be the motto of even those of learned leisure, whose smiles on men of genius seldom launch sunbeams into space! It is consolatory, however, to know that master spirits, full of eyes—that is to say, men of science—have, by the recent discussions, been induced to glance at the subject indicated by the heading of this paper—but spare me, ye "omnivorous productions!"

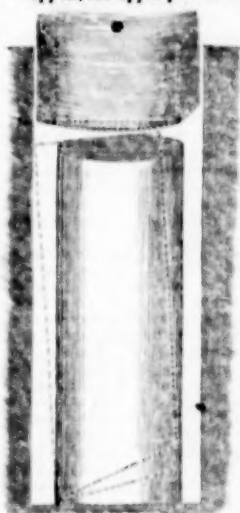
It has occurred to me that, if a circumferential space could by any means be cut or bored, the labour of pulverising the central core might be saved, and the work accelerated. This may be deemed impracticable—and it may be so—but the matter may be worth consideration. It is a great point gained to arrive at a knowledge of what cannot be done, as what can be accomplished is more likely to be discovered. What one age pronounces to be impossible another presents for the astonishment of brains, whose spirits seem centred in one great organ of wonder. But far be it from us to attempt to "astonish the natives," as one was yesterday, by the announcement of an instrument for cutting a hole larger at bottom than at top.

Suppose the annexed to be a (hollow) cylinder of steel, of any given length, or calibre, or thickness (steel throughout would, perhaps, ultimately be most economical, as this will not, like common borers, be

broken by hammering, as no mallet will be used). It may be made of iron, and steel tipped. The end A to be bevelled, one half inside, and the other half outside. This may be done by filing or welding.

The two semi-circular inclinations would form an eccentric circular line (see fig.). This line would be the cutting part of the instrument, and would make a hollow ring of the thickness of the cylinder, whilst the core would find its way in the hollow centre, till broken occasionally, as shown hereafter.

Suppose the upper part of this figure to be the tip of the instrument



The handles, it is to be observed, should be turned round a little (horizontally) every two or three blows, for it is by turning, as well as by the jiggling or jumping motion (just as in sawing), that the cutting is effected. Each man holds the opposite handle.

Our "bal" coppers, Mr. Editor, are very clever fellows, and so have the organ of self-esteem very large, though some of them have "the pride that apes humility!" My grandfather was one, and, as it seems there is some truth in the doctrine of hereditary tendencies, they will, perhaps, pardon "a chip of the old block" if he should cause a fathom of ground to be cut for less than 70*l.*—the price once paid, it is said, in the Wherry Mine, near this town.

Penzance, March 6.

ALFRED T. J. MARTIN.

## ON MINE SURVEYING.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—It appears that we have brought on our puny shoulders an intolerable onus, and have now marshalled against us England, Scotland, Ireland, and Wales. Napoleon was never a match for all this; and who does not see that such an array of literary strength must produce the most inevitable consequences. However, Sir, we must chance it—where the odds are so unequal, defeat, on our part, will be no disgrace, and victory must be immortal renown. But, to give the subject a more convenient form, and facilitate the discussion, we beg, most respectfully, to propose that some appropriate title should be used to designate the contending parties. Perhaps our opponents, who appear to be not a little fastidious, would feel themselves insulted were we to designate the opposite parties "Bregites" and "Anti-Bregites," and the different systems "Bregism" and "Anti-Bregism;" and believing that Paddyites and non-Paddyites would be rejected with disdain, even by their own party—as our Callington friend appears to be the hero of the whole play—there can be no reasonable objection to "Budgites" and "Anti-Budgites."

On a survey of the whole matter, we cannot help remarking, on the side of Budgism, what a conflict of opinion prevails among their own party; one says that we cannot make an underground survey correctly—

another says the matter is generally known in Cornwall—one states that a chain may be in error two or three inches, or more, too short or too long, and still harmonise with the logarithmic tables—another says that such instruments never ought to be used—one says that the best instruments should be used—another says that they can make a survey with those fabricated by their own ingenuity—one recommends the dial as a general check—another says it is preposterous, in this enlightened age. When these great lights of the "western hemisphere" send forth their respective rays, subject to such multifarious refrangibility, every object becomes distorted—a false colouring is given to the whole, and it requires more than ordinary vision to give the subject its true place or proper colour; in fact, Budgism is such, that no intellect can scan it—no logic define it—no numbers measure it—all that can be done is to catch a passing glance of it, and speculate on its thousand shapes in the best possible way.

A Budgite in your last, observes, that he has been a surveyor for fourteen years, and used the same instrument for that time, consequently it is no wonder that he should have very limited knowledge of the different instruments which obtain in mine surveying. He contends that his system is sure to be correct, and far preferable to the zig-zag method, by which we understand the latter to be incorrect; but, from his own showing, he uses underground the method which he condemns, and makes this the very basis of his survey; and also uses a great part of his very cogent epistle to show how it is to be performed. As far as regards the Anti-Budgites, the whole relation is superfluous, for the matter is not only known here, but we have mathematicians who, for neatness and accuracy in the fabrication of their instruments, have an established reputation. It further appears, that his zig-zag method is to be tested by geometrical construction; but how is this to be done?—by a large protractor, or rather circle. How large—can a man stand in it? Is it such a one as is used for astronomical purposes? Perhaps it would pass in a Cambrian barrow-road; this huge instrument is graduated each degree into quarters, while the original instrument is graduated each degree into sixty minutes; but the less perfect instrument is here called most perfect, and the one having its degrees divided into quarters is adopted in preference to that which is divided into sixty parts. Paddy uses the old try-back method, and repeats the "Derry-down" A B C track of his drafts. Why do not those gentlemen be consistent with themselves—they are adepts in using that which they condemn, and we defy them to prove that they can do without it. It does not signify whether it be done underground or aboveground—they all use it; and despicable as it may be, not one of them can dispense with it, and every one uses it as an accurate method; this, however, is in perfect keeping with this class, for one of them, I think, says, if it be right, that is no proof of its correctness; by which we infer, that if it be wrong, it is no proof that it is wrong, and may be correct after all; if these are the arguments which they have so ably handled, then we accord to them their due meed of praise, and hope never to make an effort to call in question these very superior abilities.

Another Budgite says that he knows a little of mine surveying, but he believes that many who call themselves captains are incompetent men; for this art, we think, better cannot be done than to place him as their first, and then it is matter of doubt, whether a severe drilling can make anything of him, even if he were to go to Ireland, under a superior officer, for, in the very simple case which he cites, unable to perform the work himself, he calls in his bungling friend, and we venture to affirm that the apparatus used was sufficiently ridiculous. He censures a Cornish captain because he would not, or could not, enter a fissure of the rock; perhaps we are next to be censured because we do not go through the rock itself. Our countryman was expected to push his way where a dial would not pass; and, unable to do so, he packed off his family—left the place in disgust—and did not even inquire for a character. This, however, was not needed, as his enemies called him a competent captain. It appears, then, he left not through incompetency, but in disgust, and we have up to this time to learn that the mountaineers of Wales are carrying on the most despicable modes of mining—even without a regular gallery, without a barrow-road, and with openings too small even for a dial or spirit level—a mere fissure, and that laying and underlaying; and yet it appears that the Welshmen could pass through it—if so, they were certainly the men to dial it; and we commend the Cornishman, if such were ever there, for turning his back on such a place.

We commenced our observations with a stickler for perfect instruments—we end them, for the present, with one or more of the same class, who pretends to survey, perhaps in a fissure, with a flat dial, without sights, without a quadrant, and without traverse—we do not envy such overwhelming attainments. In conclusion, we call on them to meet fairly the arguments. Our former observations look them full in the face, and not one of them has yet attempted by argument to undermine the position of, Sir, your's, &c.,

Breaage, March 15.

A CORNISH MINNER.

## POWER OF WATER WHEELS.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—If any of your practical correspondents, through the medium of your valuable Journal, will answer the following query and mode of calculation, it will be considered a favour by A CONSTANT READER.

St. Austell, March 8.

The horse-power of an undershot water-wheel, 25 feet diameter, 10 feet breast, 1 foot 6 inches float board, head or fall of water 7 feet?

FRENCH CUSTOMS.—The authorities of the French Customs have just published a statement of the stock of foreign produce in the Customs-house stores of Paris, from which it appears that on the 31st January ult., there remained in store 56,038,351 kilogrammes of coal, 7,094,643 kil. of cast metal, 191,843 kil. of pure copper, 2,100,732 kil. of lead, 465,664 kil. of tin, 99,265 kil. of zinc, and 670,934 kil. of nitrates of soda.

NEW COLLIERIES.—A meeting of the coal owners in Tipton, Birmingham, and Newbold, was held on Friday, the 12th inst., at the Angel Inn, when there were present George Stephenson, Esq., W. J. Bragshaw, Esq., A. B. Slater, Esq., Mr. Haslehurst, and several others. All the parties, except one or two individuals, consented to the terms of the agreement which embraces a coal-field of 400 acres, the works of which will be commenced forthwith. There is no doubt but that these collieries will prove a great benefit to Chesterfield and the neighbourhood.—*Derbyshire paper*.

"GREAT WESTERN" STEAM NAVIGATION COMPANY.—On Thursday last the adjourned general meeting of this company was held at their office, Prince's street, Bristol. A motion to discontinue the manufacturing part of the concern was negatived by a considerable majority. A report was read from Mr. Brunel, the company's engineer, in which he speaks highly of the Archimedes screw, which is to be applied to the iron vessel now building for the company.

ANTERIAN WELL AT GREENVILLE.—It is said that M. Mulot is a loser of 40,000*fr.* by his contract; we understand, however, that the municipality at Paris intend, with just liberality, not only to make good this deficit, but also to confer on M. Mulot a pension of 30,000*fr.* for his life.

IMMENSE STONE ARCH.—The large span of the viaduct on the Edinburgh and Glasgow Railway, that crosses the Union Canal at Tannochhall, near Falkirk, had the keystone put into it on Thursday, the 4th inst.; the length of the span is 130 feet, the height from the springers 24 ft. 6 in., the height from the ground underneath 35 ft. The stones of which this great arch are composed were all brought from Forfarshire; they are 4 ft. deep in the bed bluish colour, and of peculiar strength. The weight of the arch stones alone of this stupendous piece of masonry is upwards of 1500 tons. The arch was thrown upon trussed centres, which required no less than betwixt 12,000 and 13,000 cubic feet of timber for their construction.

BLACKROCK AND MERTHYR RAILWAY.—This proposed line of railway promises to open a new market for agricultural produce, with the advantage of enriching the land in the district with an abundant supply of lime, at low cost; there will be a tunnel 2000 yards in length, but, being through sandstone, will require no brick arching or masonry, and, consequently, the cost will be light. The strata is very favourable—lime and building stone in abundance; there can be but one opinion of the advantages to be derived by the district through which this line will pass.

LIVE FROG IMBEDDED IN COAL.—During the past week considerable sensation was created in Lancaster, by the following remarkable incident.—Mr. R. Touchdown (of Penny-street) on breaking a large piece of coal, was surprised by a live frog jumping out of a small hollow in the centre, which appears to have formed its home since the formation of the seam; the reptile is said to be a fine lively specimen of the genus, and has been visited by great numbers of the curious.



ENGLISH MINES.

## Mining Correspondence.

ENGLISH MINES.

HOLMBUSH MINING COMPANY.

**TRETOIL MINING COMPANY.**

WHEAL LEEDS MINING COMPANY.

C. H. RICHARDS.

## WEST WHEAL JEWEL MINING ASSOCIATION.

SARK MINING COMPANY.

FOREIGN MINES.

ST. JOHN DEL REY MINING COMPANY.

at the mine (32 ins. 5 ft.), which contains  
that is the great Quebra Paella and Babu,

MEXICAN MINING COMPANY.

Fig. 2.—I have the pleasure to transmit herewith a cross-profile of the mine, containing the several threads of the lode of the Porisima; the boundaries of these, or, properly speaking, the over and underlays of the Porisima lode, have, to my knowledge, never been discovered yet anywhere; a subjoined smaller sketch indicates the general inclination, as taken in profile. With my next report I shall transmit a final sketch, representing principal lode of the Porisima, with all its branch threads, whether rich or poor, in ore or exhausted—rich lodes are frequently subject to being run into numerous threads, of which the new working in the Porisima is striking illustration, being situated high on the overlay of the old workings. Repeated consideration of this circumstance, I cannot but entertain the hope, that rich threads of ore may still be extant, either in the over or underlays of the old *Solidad* and *Jesus Maria*, of the southern district, ought to be ascertained, by further extending the cross-cuts already existing in the mines. By communicating the new working (Porisima) with old Terreros, I have been enabled to increase the extraction of ore. Most of the points where the barrel ore break upon the surface have been cleared of barren ore. It appears probable that these ore, towards south, extend very horizontally in the direction of the overlay of the old working, near Terreros, and its communication with the inner workings of the mine will place in the large "Ruina" of the old "Tajo." For this fortnight I have been engaged searching the solid edge of the "Tajo" north, and this way to be discovered in good ore, the extraction of a sufficient barrel supply for Santa Anna may be guaranteed for the present year from the







